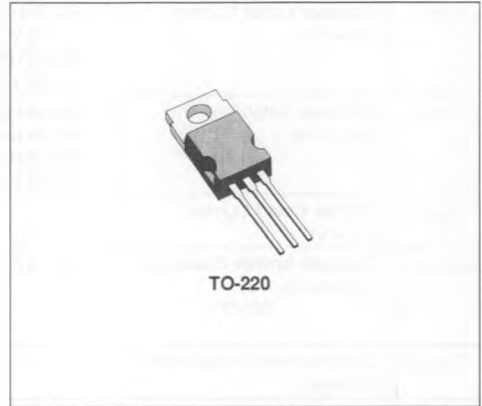


MEDIUM POWER LINEAR AND SWITCHING APPLICATIONS

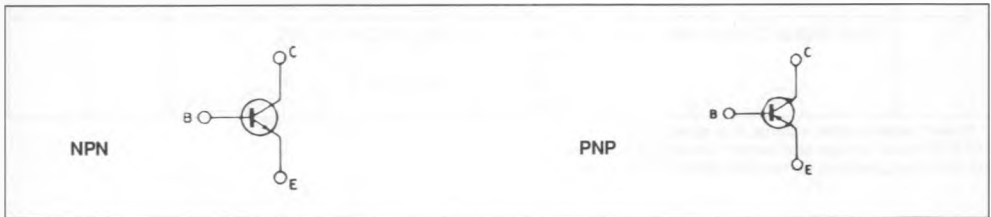
DESCRIPTION

The BD241, BD241A, BD241B and BD241C are silicon epitaxial-base NPN power transistors in Jedec TO-220 plastic package, intended for use in medium power linear and switching applications.

The complementary PNP types are the BD242, BD242A, BD242B and BD242C respectively.



INTERNAL SCHEMATIC DIAGRAM



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	NPN PNP*	Value				Unit
			BD241 BD242	BD241A BD242A	BD241B BD242B	BD241C BD242C	
V_{CEr}	Collector-emitter Voltage ($R_{BE} = 100 \Omega$)		55	70	90	115	V
V_{CE0}	Collector-emitter Voltage ($I_B = 0$)		45	60	80	100	V
V_{EB0}	Emitter-base Voltage ($I_C = 0$)		5				V
I_C	Collector Current		3				A
I_{CM}	Collector Peak Current		5				A
I_B	Base-Current		1				A
P_{tot}	Total Power Dissipation at $T_{case} \leq 25^\circ C$ $T_{amb} \leq 25^\circ C$		40				W
			2				W
T_{stg}	Storage Temperature		- 65 to 150				$^\circ C$
T_J	Junction Temperature		150				$^\circ C$

* For PNP types voltage and current values are negative.

THERMAL DATA

$R_{th\ j\ case}$	Thermal Resistance Junction-case	Max	3.13	°C/W
$R_{th\ j\ amb}$	Thermal Resistance Junction-ambient	Max	62.5	°C/W

ELECTRICAL CHARACTERISTICS ($T_{case} = 25\ ^\circ\text{C}$ unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CEO}	Collector Cutoff Current ($I_B = 0$)	for BD241/42/41A/42A $V_{CE} = 30\ \text{V}$ for BD241B/42B/41C/42C $V_{CE} = 60\ \text{V}$			0.3	mA
I_{CES}	Collector Cutoff Current ($V_{BE} = 0$)	for BD241/42 $V_{CE} = 45\ \text{V}$ for BD241A/42A $V_{CE} = 60\ \text{V}$ for BD241B/42B $V_{CE} = 80\ \text{V}$ for BD241C/42C $V_{CE} = 100\ \text{V}$			0.2 0.2 0.2 0.2	mA mA mA mA
I_{EBO}	Emitter Cutoff Current ($I_C = 0$)	$V_{EB} = 5\ \text{V}$			1	mA
$V_{CEO(sus)}^*$	Collector-emitter Sustaining Voltage ($I_B = 0$)	$I_C = 30\ \text{mA}$ for BD241/42 for BD241A/42A for BD241B/42B for BD241C/42C	45 60 80 100			V V V V
$V_{CE(sat)}^*$	Collector-emitter Saturation Voltage	$I_C = 3\ \text{A}$ $I_B = 0.6\ \text{A}$			1.2	V
$V_{BE(on)}^*$	Base-emitter Voltage	$I_C = 3\ \text{A}$ $V_{CE} = 4\ \text{V}$			1.8	V
h_{FE}^*	DC Current Gain	$I_C = 1\ \text{A}$ $V_{CE} = 4\ \text{V}$ $I_C = 3\ \text{A}$ $V_{CE} = 4\ \text{V}$	25 10			
h_{fe}	Small Signal Current Gain	$I_C = 0.5\ \text{A}$ $V_{CE} = 10\ \text{V}$ $f = 1\ \text{KHz}$ $I_C = 0.5\ \text{A}$ $V_{CE} = 10\ \text{V}$ $f = 1\ \text{MHz}$	20 3			

* Pulsed : pulse duration = 300 μs , duty cycle $\leq 2\%$.

For PNP types voltage and current values are negative.

For the characteristics curves see TIP31/TIP32 series.